Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at http://about.jstor.org/participate-jstor/individuals/early-journal-content.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

surface is in and around the Gulf of Mexico; that exposed to the most violent and repeated shocks, the Javanese Archipelago, of which the island of Sumbava forms nearly the centre; while, probably, the most interesting earthquake tract now known is the great submarine one in the Atlantic Ocean, in latitude 0° to 1½° south, and west longitude, from 20° to 23° or 24°.

The places on the earth's surface as to which earthquake information is most wanted, and to be commended to the attention of travellers are, the great Ethiopian chain of mountains, and interior of Africa generally, Madagascar, Central and Northern Asia, where the earthquake regions seem to follow the courses of the great northern rivers, north of Lake Baikal, the north-west of North America, the Gallipagos Islands, and in Europe, Spain.

The President made some remarks upon Mr. Mallet's Paper.

Dr. Allman read a paper on the Homology of Organs and the Affinities of the Polyzoa and Tunicata.

In this communication it was the author's object to demonstrate that the affinities between the Tunicata and Polyzoa were even closer than what was generally imagined, and that almost every portion of the organization of the one had its corresponding homologue in the other. The hippocrepean Polyzoa are those which indicate most clearly the unity of type on which the two groups are constructed, and a comparison was therefore instituted between a *Clavelina* and a *Plumatella.* It was shown :—

1. That the respiratory sac of the one was in every particular homologous with the tentacular crown of the other; that the arms of the lophophore in Plumatella were represented by the "branchial sinus" in Clavelina, the tentacula in Plumatella by the transverse bars or vessels which spring off from each

side of this sinus; the calyciform membrane in the one by the external membrane of the respiratory sac in the other, and the oral valve-like organ of Plumatella by the "languets" of Clavelina reduced to a single one.

2. A similar homological identity was attempted to be shown in the Dermal system, and each of the three sacs demonstrated by Mr. Milne Edwards to exist in Clavelina was maintained to have its exact equivalent in the Polyzoa: the test of the tunicate would thus correspond to the external investment or ectocyst of the polyzoon; the mantle of the tunicate to the internal sac or endocyst of the polyzoon; and the internal tunic of the tunicate to the tentacular sheath of the polyzoon. It was further maintained, that the external orifice through which the tentacular crown is projected in the Polyzoa is equivalent to the respiratory and cloacal apertures of the Tunicata united; and that the point where the intestine opens externally in the Polyzoa corresponds to the point where it perforates the internal tunic in the Tunicata, the small space between the tentacula and their sheath, and which, during the exerted state, becomes obliterated, being equivalent to the cloaca of the Tunicata.

3. A similar resemblance was shown to exist in the digestive system.

4. It was maintained that the circulatory system of the Tunicata was but a very slight advance on that of the Polyzoa, while in the tunicate genus, Pelonaia, the absence of a heart reduces this system entirely to the type of the Polyzoa. Throughout the whole of the Tunicata and Polyzoa the great sinus system is identical in both.

5. The muscles existing in the mantle of the Tunicata are equivalent to corresponding fibres in the endocyst of Polyzoa, and the ultimate fibre is found to be striped in both groups.

6. It was endeavoured to be shown, that the great nervous ganglion was, both in the Tunicata and Polyzoa, equivalent to the branchial and cephalic ganglia of the higher mollusca fused

into one, and that the difference of position which exists between the Tunicata and Polyzoa, with respect to the position of the ganglion, is unimportant, being the necessary result of the other modifications of structure.

7. The generative systems of the two were then compared, and shown to present strong points of resemblance; and it was finally concluded that the Tunicata and Polyzoa were more closely allied to one another than either to any other branch of the animal kingdom. The inexpediency, however, of removing the Tunicata from the Mollusca, and placing them with the Polyzoa at the top of the Radiata, was insisted on, and it was, on the contrary, maintained, that the great group of the Acephalous Mollusca contained four principal types of form, which admitted of a subordinate grouping by two and two, namely, the Polyzoa and Tunicata, and the Brachiopoda and Lamellibranchiata.

Mr. W. T. Mulvany, on the part of the Commissioners of the Board of Works, presented several collections of antiquities made by the officers employed in different parts of Ireland in drainage operations.

He also presented a private collection of antiquities, found by Mr. Gray, and exhibited about sixty articles, the property of private individuals in the neighbourhood of Strokestown.

He also presented, on the part of Mr. Maclane, a two-pronged fork, with a carved ivory handle, representing the lion and unicorn fighting. This fork had been found at Limerick.

Mr. Mulvany then proceeded to give an account of the several collections presented by him to the Academy, and to explain the circumstances which led to their formation. As, however, several members were anxious to hear Mr. Mulvany's communication at greater length than the time would then allow, it was unanimously resolved that he be requested to read his paper *in extenso* on the next night of meeting.